

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**with type designation(s)
4SP391, 4SH392, R12/393, R13/397, R15/398

Issued to

Polimer Kaucuk San.ve Paz. A.S.
ISTANBUL, Turkey

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses
Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Temperature range:** See Certificate**Max. working press.:** See Certificate**Sizes:** See CertificateThis Certificate is valid until **2021-06-30**.Issued at **Høvik** on **2017-11-09**DNV GL local station: **Istanbul**for **DNV GL**Approval Engineer: **Mehdi Rowshan**

Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-005571-3**
Certificate No: **TAP00000MT**

Product description

Design: The hoses are made of oil and water resistant rubber. Covers are made of oil and weather resistant synthetic rubber.

PS-R12/393 according to EN 856 R12, SAE 100R12. The hose is reinforced with 4 layers of steel wire braids.

PS-R15/398 according to SAE 100R15. The hose is reinforced with 6 layers of steel wire braids.

PS-4SP391 according to EN 856 4SP, SAE J517 100R9. The hose is reinforced with 4 layers of steel wire braids.

PS-4SH392 according to EN 856 4SH. The hose is reinforced with 4 layers of steel wire braids.

PS-R13/397 according to EN 856 R13, SAE 100R13. The hose is reinforced with 6 layers of steel wire braids.

Sizes depending on fitting type:

PS-R12/393		PS-R15/398		PS-R13/397	
BSS4XX BSN4XX		BSS6XX BSN4XX		BSS6XX BSN4XX	
Skive	No-skive	Skive	No-skive	Skive	No-skive
DN19 (3/4")	DN19 (3/4")	DN19 (3/4")	DN19 (3/4")	DN19 (3/4")	DN19 (3/4")
DN25 (1")	DN25 (1")	DN25 (1")	DN25 (1")	DN25 (1")	DN25 (1")
DN31 (1 1/4")	DN31 (1 1/4")	DN38 (1 1/2")	-	DN31 (1 1/4")	-
DN38 (1 1/2")	DN38 (1 1/2")	-	-	DN38 (1 1/2")	-
DN51 (2")	DN51 (2")	-	-	DN51 (2")	-
PS-4SP391		PS-4SH392			
BSS6XX BSS4XX BSN4XX		BSS4XX BSN4XX			
Skive	No-skive	Skive	No-skive		
DN19 (3/4")	DN19 (3/4")	DN19 (3/4")	DN19 (3/4")		
DN25 (1")	DN25 (1")	DN25 (1")	DN25 (1")		
DN31 (1 1/4")		DN31 (1 1/4")	DN31 (1 1/4")		
DN38 (1 1/2")		DN38 (1 1/2")	DN38 (1 1/2")		
DN51 (2")		DN51 (2")	DN51 (2")		

Fittings are manufactured by:

TIEFFE Spa
Via dell'Industria 7/11
CURA CARPIGNANO
Pavia-Italy

Fitting material: 11SMnPb37 UNI EN10277

Application/Limitation

The hoses in this type approval may be used in the following systems such as Hydraulic, fuel, and lubrication oil, bilge, ballast, seawater and fresh water cooling systems

Design temperature:

PS-R12/393 and PS-R13/397: -40°C to +120°C

PS-4SP391 and PS-4SH392: -40°C to +100°C

PS-R15/398: -40°C to +120°C

Maximum working pressure:

PS-R15/398: 420 bar for all sizes.

PS- RR13/397: 345 bar for all sizes.

	PS-R12/393	PS-4SP391	PS-4SH392
	Bar	Bar	Bar
DN19	280	350	420
DN25	280	280	380
DN31	210	210	325
DN38	175	185	290
DN51	175	165	250

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

Each hose assembly delivered under the DNV GL type approval scheme shall be subjected to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to the type approval certificate.

Flexible hoses are only to be used in short lengths where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hoses must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used on boiler fronts.

The hoses are to be mounted in accordance with the manufacturer's instructions.
It must be possible to shut off from the system for all flexible hoses used in systems for compressed air, lubrication oil, fuel oil and petroleum base hydraulic oil.

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalized.

For use with compressed air or gases above 16 bar, the cover of the hose has to be pin pricked.

Type Approval documentation

Tests carried out

Dimensional check, change in length, cold flexibility, oil resistance, cover adhesion, ozone resistance, fire, vacuum, impulse and burst test

Marking of product

For traceability to this type approval, the final products (hose with couplings) are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Maximum working pressure
- Size

Periodical assessment



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For retention of the Type Approval, DNV GL Surveyor shall perform a periodical assessment every second year, to verify that the conditions for the type approval are complied with and to witness burst tests on every 3rd size of each type.

The tests are to be performed with the type of couplings fitted that are Type Approved with the hoses.